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U.S. TRADE AND DEVELOPMENT PROGRAM

ENERGY PROJECTS DATA SHEETS

AUGUST 31, 1982

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TDP ENERGY PROJECTS DATA SHEETS

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TDP PROJECT DATA SHEET
August 24, 1982

1. PROJECT TITLE: Belize - Electricity Program

PROJECT NUMBER: 7425039

PROJECT ACTIVITY TYPE: Design and Engineering

MODE OF IMPLEMENTATION: Contract

IMPLEMENTING AGENT: Burns & Roe, Inc.

PROJECT OFFICER:
Mr. Joe Sconce
Trade and Development Program
International Development Cooperation Agency
Washington, DC 20523
(703) 235-3663

PROGRAM MANAGER:
Mr. Joe Sconce
Trade and Development Program
International Development Cooperation Agency
Washington, DC 20523
(703) 235-3663

CONTRACTING AGENT:
Agency for International Development (AID)

PARTICIPANTS:

Belize	Ministry of Energy and Communication	Louis S. Sylvestre, Minister
United States	Trade and Development Program	
AID	Project Contract	Edward Thomas
Belize Electricity Board (BEB)	Belize Project Management	Sergio Brull, General Manager, BEB
Burns & Roe, Inc.	U.S. Contractor	Frank Pindar

2. TOTAL TDP COST: $175,000
TOTAL PROJECT COST: $210,000

3. START: May 1982
COMPLETE: September 1982

4. PROJECT SUMMARY:

A. Objectives:
1) Improve the electrical transmission and distribution system of Belize.
2) Open a market for U.S. technology, services and equipment in the planning and construction phases of this project.

B. Background: Belize City, the major electrical load center in Belize, is supplied primarily with electrical power generated at a power station twelve miles from the city. The transmission circuits are operating above rated capacity and therefore experience excessive (20%) line losses and voltage regulation problems. The requirement for additional power is steadily increasing. Recent technical studies performed for the Belize Electricity Board of Directors indicate that construction of a 69 KV transmission line and updating of power distribution equipment are necessary and the need for more electrical power can best be met by purchasing it from Mexico. In

addition, current financing arrangements with the Caribbean Development Bank for the 69 KV transmission line require that the contracts for construction and supply be awarded during calendar year 1982.

C. Description: The overall project includes constructing a 69 KV transmission line from the power generation station to Belize City, upgrading and converting system equipment using U.S. standards instead of British, and constructing a power line 100 miles long to provide Belize with electrical power from Mexico. The first task required is a design and engineering study for the 69 KV transmission line and associated equipment which will provide the information required to award the construction and supply contracts during 1982 as previously stated.

D. Benefits/Results: The export potential for U.S. sources during the next five years is approximately $18 million in services and equipment. Expansion of the electrical system in the late 1980's will increase the export potential to the $150-200 million range.

5. BASELINE SCHEDULE:

Milestones	Date
Approve Project	May 1982
Award Engineering Study Contract	May 1982
Complete Study	September 1982
Award Construction and Supply Contract	December 1982

6. FUNDING - ALL YEARS (Initial Study only):

	FY82	TOTAL
U.S./TDP	$175,000	$175,000
Belize	35,000	35,000
TOTAL	$210,000	$210,000

7. TDP FUNDING:

	FY82
OBLIGATED:	$172,000
DISBURSEMENTS: (July 31, 1982)	0

8. OTHER:

The Government of Belize will pay the local expenses (estimated at $20,000) of the U.S. consultants for this study and $15,000 for an electric power market study (See Item 6). In August 1982, Belize gave Burns and Roe a $95K contract to study the power supply interconnection from Mexico. This action will assure the conversion of the Belize system to U.S. equipment.

TDP PROJECT DATA SHEET
August 17, 1982

1. PROJECT TITLE: Botswana - Coal Study

PROJECT NUMBER: 7415018

PROJECT ACTIVITY TYPE: Definitional

MODE OF IMPLEMENTATION: Government/Industry Team

IMPLEMENTING AGENT: Department of Energy

PROJECT OFFICER:
Mr. Raymond Dinkin
Trade and Development Program
International Development Cooperation Agency
Washington, DC 20523
(703) 235-3657

PROGRAM MANAGER:
Mr. Raymond Dinkin
Trade and Development Program
International Development Cooperation Agency
Washington, DC 20523
(703) 235-3657

CONTRACTING AGENT:

PARTICIPANTS:

Botswana	Ministry of Mineral Resources and Water Affairs	Acting Permanent Secretary Lekaukau
United States	Trade Development Program	
AID Mission, Botswana	Project Support	
U.S. Dept. of Energy	Conduct Study	

2. TOTAL TDP COST: $ 85,000
TOTAL PROJECT COST: (See Item 6)

3. START: August 1980
COMPLETE: September 1982 (See Item 8)

4. PROJECT SUMMARY:

A. Objectives:
1) To improve utilization of coal resources in Botswana, thereby reducing imports of energy and providing new products for export.
2) To develop a market opportunity for sale of U.S. equipment and services in coal mining, coal processing, and follow-on projects.

B. Background: Botswana's development objectives include economic independence and sustained growth. The development of the country's proven coal reserves would provide a major means of generating foreign exchange earnings through exports of coal and coal-derived products. Domestically produced coal would also replace imported energy as well as domestic fuel wood. Potential uses for domestic coal include thermal power generation, conversion to oil, and conversion to synthetic gas ("town gas"). Synthetic gas can be used for domestic heating and cooling, and also as a feedstock

for fertilizer plants and other chemical-producing plants. Other process routes from coal to chemicals are also possible, and could be used as a basis for a chemical industry.

C. Description: The project consists of a definitional study which examines alternative approaches for developing the Botswana coal reserves and defines appropriate strategies for implementing projects with a high potential for early success.

D. Benefits/Results: The export potential for U.S. products and services to support this development program is estimated to be $50-200 million.

5. BASELINE SCHEDULE:

Milestones	Date
Approve Project	August 1980
Start Study	January 1981
Complete Study	September 1982

6. FUNDING - ALL YEARS:

	FY81	TOTAL
U.S./TDP	$ 85,000	$ 85,000
Botswana	In kind	In kind
TOTAL		

7. TDP FUNDING:

	1981
OBLIGATED:	$ 85,000
DISBURSEMENTS: (July 31, 1982)	$ 14,707

8. OTHER:

A DOE project team which included three private sector representatives visited Botswana and prepared a report of their findings and recommendations. Essentially, they recommended that the development program should start with small projects for domestic utilization of coal (import substitution), and for domestic conversion of coal into smaller volume, higher value products for export. The Government of Botswana has been considering a large scale coal export project utilizing several European firms. Coal export requires the building of a railroad (Trans-Kalahari) in order to be feasible, and it now appears the railroad will not be built in the foreseeable future. Thus, Botswana is now looking with favor upon the U.S. approach. A follow-up mission requested by Botswana and involving some members of the original team took place in July 1982. The team leader returned to Botswana in August 1982 for a final review and report to the Ministry of Mineral Resources and Water Affairs. His report and final recommendations are expected in September 1982.

TDP PROJECT DATA SHEET
August 20. 1982

1. PROJECT TITLE: Brazil - Development of Natural Gas

PROJECT NUMBER: 3586073

PROJECT ACTIVITY TYPE: Prefeasibility

MODE OF IMPLEMENTATION: Contract

IMPLEMENTING AGENT:

PROJECT OFFICER:
Mr. Joe Sconce
Trade and Development Program
International Development Cooperation Agency
Washington, DC 20523
(703) 235-3663

PROGRAM MANAGER:
Mr. Joe Sconce
Trade and Development Program
International Development Cooperation Agency
Washington, DC 20523
(703) 235-5663

CONTRACTING AGENT:
U.S. Geological Survey

PARTICIPANTS:

Brazil	Secretariat of Industry, Commerce, Science and Technology	Roberto Hukai
United States	Trade and Development Program	
Paulipetro	Project Management	Dr. Luiz Saragiotto General Manager
U.S. Geological Survey	Technical Project Manager	Lee Benton
	Contract Support	Verle Malik

2. TOTAL TDP COST: $219,000
TOTAL PROJECT COST: (See Item 6)

3. START: May 1982
COMPLETE: January 1983

4. PROJECT SUMMARY:

A. Objectives:
1) To identify alternate uses for natural gas deposits of apparently great potential in Brazil.
2) To place U.S. industry in a position to participate in all possible phases of design, construction and operation of projects resulting from this geological discovery.

B. Background: Brazil's Southern Cone Energy Network project, whose Phase 1 feasibility study is supported by TDP funds, will require large amounts of natural gas if it is pursued. It was originally anticipated that the gas

would be purchased from Argentina. Subsequently, highly promising deposits of natural gas have been discovered in Southern Brazil. According to a United States Geological Survey representative, early drilling results and the subterranean structures encountered are strong indications of a large oil and gas basin. Western Germany, France, the United Kingdom, Japan and the Soviet Union are all potential sources of funds for financing this study. However, the State Secretariat of Industry, Commerce, Science and Technology at Sao Paolo has requested assistance from TDP.

C. Description: This project consists of a study that will identify and analyze all relevant technically and economically sound alternatives for using natural gas discovered in the Parana Basin. Demand characteristics, market constraints, gas composition, location of wells, and volume of production will all be considered in producing data for comparative evaluation of each alternative.

D. Benefits/Results: If, as anticipated, the quantity of natural gas is large, capital investment required for this project is estimated at $3-4 billion. U.S. industry will be competitive in engineering and design services, specialized drilling equipment, pipelaying machinery, compressors, instrumentation and controls. The potential U.S. share of goods and services in these categories is conservatively estimated at $500 million.

5. BASELINE SCHEDULE:

Milestones	Date
Approve Project	May 1982
Award Study Contract	September 1982
Complete Study	January 1983

6. FUNDING - ALL YEARS (Initial Study Only)

	FY78	TOTAL
U.S./TDP	$219,000	$219,000
Brazil	In kind	In kind
TOTAL		

7. TDP FUNDING:

	FY78
OBLIGATED:	$219,000
DISBURSEMENTS: (July 31, 1982)	0

8. OTHER:

TDP PROJECT DATA SHEET
August 20, 1982

1. PROJECT TITLE: Brazil - Southern Cone Energy

PROJECT NUMBERS:

7415035 - Natural and Synthetic Gas Pipeline Systems
7415036 - Coal Gasification Plants

PROJECT ACTIVITY TYPE: Feasibility

MODE OF IMPLEMENTATION: Contract

IMPLEMENTING AGENT: Fluor, Inc.

PROJECT OFFICER:
Mr. Joe Sconce
Trade and Development Program
International Development Cooperation Agency
Washington, DC 20523
(703) 235-3663

PROGRAM MANAGER:
Mr. Joe Sconce
Trade and Development Program
International Development Cooperation Agency
Washington, DC 20523

CONTRACTING AGENT:
Mr. John Abood
Agency for International Development (AID)
Washington, DC
(202) 235-1399

PARTICIPANTS:

Brazil	Sao Paolo Secretary of Industry, Commerce, Science and Technology	Dr. Oswaldo Palma Dr. Roberto Hukai
United States	Trade and Development Program	
AID	Engineering Support	Harold LeSieur
Fluor, Inc.	U.S. Contractor	Vernon Hill
Jaakro-Poyry	Brazilian Contractor	C. Rocchiccioli

2. TOTAL TDP COST: $504,897
TOTAL PROJECT COST: $624,897
(See Item 6)

3. START: February 1981
COMPLETE: August 1982

4. PROJECT SUMMARY:

A. Objectives:
1) To reduce Brazil's dependence on imported petroleum.
2) To develop a market for U.S. exports on coal gasification plants, pipe laying equipment, control systems, A&E services, etc.

B. Background: This project resulted from a TDP-sponsored Brazil/U.S. workshop on coal utilization and was assigned the highest priority among the various options examined by the delegates. Other than the fuel alcohol programs, it will be the major alternative energy project in Brazil. Total cost has been estimated at $5 billion. The U.S. is competitive in about 60% of the imported project components but not in pipe per se.

C. Description: Fluor, Inc., under one contract, is conducting two interdependent feasibility studies with respect to the construction for Southern Brazil of 1) an integrated natural gas pipeline system and 2) a coal gasification system. Natural gas would be imported from Argentina and mixed with methane derived from coal gasification. However, new natural gas discoveries in Brazil may diminish or eliminate the need to import gas from Argentina. TDP is financing a concurrent study of the new gas finds. An LNG terminal and regasification facilities are also contemplated. Subsequent project activity is dependent on results of these studies.

D. Benefits/Results: U.S. Export Potential - $500 million to $ 1.5 billion.

5. BASELINE SCHEDULE:

Milestones	Date
Project Approval	February 1981
Contract Award	August 1981
Midpoint Review	February 1982
Deliver Final Draft	May 1982
Phase I Completion	August 1982
Phase II Decision	September 1982

5. FUNDING - ALL YEARS (Through Phase II only)

	FY81	TOTAL
U.S./TDP	$504,897	$504,897
Brazil	120,000	120,000
TOTAL	$624,897	$624,897

. TDP FUNDING:

		FY81
#7415035	Initial	$225,000
	Additional	44,000
	Subtotal	269,000
#7415036	Initial	225,000
	Additional	10,897
	Subtotal	235,897
	TDP TOTAL	$504,897
	DISBURSEMENTS: (July 31, 82)	$497,934

. OTHER:

The State of Sao Paolo will contribute the equivalent of $120,000 (Item 6) in technical and scientific personnel and related expenses of state institutions involved.

TDP PROJECT DATA SHEET
August 20, 1982

1. PROJECT TITLE: Jamaica - Coal Utilization Study

PROJECT NUMBERS:

7415054 - Definitional Study
7415081 - Feasibility Study

PROJECT OFFICER:
Mr. Joe Sconce
Trade and Development Program
International Development Cooperation Agency
Washington, DC 20523
(703) 235-3663

PROJECT ACTIVITY TYPE: Definitional and Feasibility

MODE OF IMPLEMENTATION: Contract

PROGRAM MANAGER:
Mr. Joe Sconce
Trade and Development Program
International Development Cooperation Agency
Washington, DC 20523

IMPLEMENTING AGENT:
Definitional Study: Energy Systems International
Feasibility Study

CONTRACTING AGENT:
Government of Jamaica

PARTICIPANTS:

Jamaica	Ministry of Mining and Energy	Dr. Henry Lowe
United States	Trade and Development Program	
Agency For International Development (AID)	U.S. Project Liaison in Jamaica	Jerome Hulehan
Coal Conversion Committee	Study Management in Jamaica	
U.S. Embassy, Jamaica	In-country Negotiations	
Energy Systems International	Definitional Study Contractor	

2. TOTAL TDP COST: $425,550
TOTAL PROJECT COST (See Item 6)

3. START: April 1981
COMPLETE: July 1983

4. PROJECT SUMMARY:

A. Objectives:
1) To reduce the dependence of the Government of Jamaica on imported oil in meeting its commercial energy requirements.
2) To develop a market for U.S. exports of engineering services, power plant equipment and coal.

B. Background: The Government of Jamaica has given top priority to reducing its 99% dependence on costly imported oil for its commercial energy requirements. The drain on foreign exchange caused by oil purchases is seriously limiting the country's economic development process. Although coal must also be imported, it is much cheaper than oil. Existing Jamaican

reports indicate that conversion to coal-fired power plants could result in a fuel saving that would pay back the capital investment within approximately five years. However, the Government does not wish to initiate this project unless its merit can be validated by a comprehensive and independent feasibility study.

C. Description: The project consists of three sequential study efforts:

1) Definitional Study: A brief analysis of Jamaican reports will be conducted to examine the logic, importance and U.S. export potential of the project and also to develop a scope of work for the follow-on feasibility study.
2) Feasibility Study/Phase I: An analysis of existing Jamaican public power generation facilities and an assessment of the economic feasibility of converting them from oil to coal in alternative combinations of existing and proposed power plants and related infrastructure.
3) Feasibility Study/Phase II: Upon selection of a desired alternative approach from Phase I, this phase will provide preliminary design, engineering and cost estimates for a specific plant, basic infrastructure and the coal supply mechanisms to be constructed.

A Coal Conversion Committee has been established by Prime Minister Edward Seaga and will be the focal point for project management in Jamaica. Dr. Henry Lowe, an official of the Jamaica Public Service, has been designated as the Project Manager for the Committee.

D. Benefits/Results: Although somewhat sensitive to the approach selected for conversion to coal, the potential market for U.S. services is large. Preliminary analysis indicates that as much as $700 million in equipment and $1,250 million in coal could be purchased though the year 2000. The United States has many well qualified companies to compete for all phases of the conversion. Because of the quality, quantity and availability, the Coal Coordination Committee has only expressed interest in U.S. sources for future coal needs.

5. BASELINE SCHEDULE:

Milestones	Date
Project Approval by TDP Review Committee	May 1981
Complete Definitional Study	July 1981
Approve U.S.-Jamaica Agreement	August 1981
Initiate Coal Utilization Feasibility Study - Phase I	August 1982
Complete Phase I Study	October 1982
Complete Phase I Evaluation	October 1982
Initiate Phase II	December 1982
Complete Phase II	May 1983
Complete Phase II Evaluation	July 1983

6. FUNDING - ALL YEARS (Through Phase II only)

	FY81	FY82	FY83	TOTAL
U.S./TDP	$109,950	$ 55,600	$260,000	$425.550
Jamaica	In Kind	In Kind	In Kind	In Kind
TOTAL				

7. TDP FUNDING:

	FY81	FY82	FY83	TOTAL
#7415054	$ 9,950			$ 9,950
#7415081	100,000	$55,600	$260,000	415,600
TDP TOTAL	$109,950	$ 55,600	$260,000	$425,550

DISBURSEMENTS: $ 9,950
(July 31,1982)

8. OTHER:

Estimate of Individual Study Costs:

Definitional Study: $ 9,950

Feasibility Study:

Phase I $155,600

Phase II $260,000

TDP PROJECT DATA SHEET
August 20, 1982

1.	PROJECT TITLE: Panama - Coal Transshipment Facility		PROJECT OFFICER: Mr. Joe Sconce, Trade and Development Program, International Development Cooperation Agency, Washington, DC 20523, (703) 235-3663
	PROJECT NUMBER:	7415092	
	PROJECT ACTIVITY TYPE:	Prefeasibility Study	PROGRAM MANAGER: Mr. Joe Sconce, Trade and Development Program, International Development Cooperation Agency, Washington, DC 20523
	MODE OF IMPLEMENTATION:	Contract	
	IMPLEMENTING AGENT:	Checchi and Soros	CONTRACTING AGENT: Government of Panama
	PARTICIPANTS:		
	Panama	Ministry of Commerce & Industry (MICI)	Juan B. LaTaste, Project Manager
	United States	Trade and Development Program	
	U.S. Embassy, Panama	In-country negotiations	Dale Slaght
	Checchi and Soros	U.S. Contractor	Frank Turner
2.	TOTAL TDP COST:	$100,000 (Phase 1)	3. START: September 1981
	TOTAL PROJECT COST:	(See Item 6)	COMPLETE: To be determined

4. PROJECT SUMMARY:

A. Objectives:
1) Examine the feasibility of developing coal transshipment facilities in Panama.
2) Develop a market for U.S. design and construction services as well as the equipment that would be required.

B. Background: A major increase is expected in the demand for coal to meet major energy requirements. Current data suggests that potential major coal suppliers to Japan and other Pacific Rim countries are the U.S., Colombia, Australia and China. Transportation routes can vary widely depending on the size of coal carrying ships. Although most current vessels can use the Panama Canal, the larger ones which are expected to become more numerous in the future will be required to use the more expensive Cape route around South America. Because of Panama's unique geographical location and shape, the Ministry of Commerce and Industry wants to determine the feasibility of developing a transshipment capability in Panama which will assist the U.S. in competing with other potential coal suppliers.

C. Description: Phase 1 of the project will consist of a Prefeasibility Study of a Coal Transshipment Facility in Panama. U.S. funds of $100,000 to assist in financing the study will be obligated by means of a grant agreement. The Ministry of Commerce and Industry (MICI) of Panama is responsible for project management functions in Panama and the Trade and Development Program (TDP) is responsible for managing and coordinating project support activities in the United States. If the results of the Prefeasibility Study are positive, Phase 2, consisting of a Feasibility and Master Development Plan is contemplated.

D. Benefits/Results: There are a number of U.S. companies capable of designing and constructing the type of transshipment facilities envisioned. The total export potential for U.S. technology is estimated at $300 to $500 million in goods and services and an additional $300 million each year in coal.

5. BASELINE SCHEDULE:

Milestones	Date
Approve Phase 1	September 1981
Complete Study	
Complete Evaluation of Report	To
Phase 2 Decision	Be
Remaining Schedule	Determined

6. FUNDING - ALL YEARS:

	FY81	TOTAL
U.S./TDP	$100,000	$100,000
Panama	In Kind	In Kind
TOTAL		

7. TDP FUNDING:

	FY81
	$100,000
DISBURSEMENTS: (July 31,1982)	0

8. OTHER:

TDP PROJECT DATA SHEET
August 27, 1982

1. PROJECT TITLE: Peoples' Republic of China - Tian Sheng Qiao Hydroelectric Project

PROJECT NUMBERS:

7425040 - Tian Sheng Qiao Hydroelectric Project Study
7425041 - Corps of Engineers Study Management

PROJECT ACTIVITY TYPE: Pre-project Study

MODE OF IMPLEMENTATION: Grant

IMPLEMENTING AGENT:

PROJECT OFFICER:
Mr. William McDonald
Trade and Development Program
International Development Cooperation Agency
Washington, DC 20523
(703) 235-3657

PROGRAM MANAGER:
Mr. William McDonald
Trade and Development Program
International Development Cooperation Agency
Washington, DC 20523
(703) 235-3657

CONTRACTING AGENT:
Corps of Engineers (COE), International Affairs Office

PARTICIPANTS:

Peoples' Republic of China (PRC)	Ministry of Electric Power Industry (MEPI)	Jia Ke, National Coordinator for Hydropower
United States	Trade and Development Program	
TDP Asian Rep. Corps of Engineers	Project Liason Study Management	Louis G. Sleeper

2. TOTAL TDP COST: $440,000
TOTAL PROJECT COST: (See Item 6)

3. START: December 1982
COMPLETE: June 1983

4. PROJECT SUMMARY:

A. Objectives:
1) To guide development and implementation of a major (2,000 MW) hydropower generation project in the Peoples' Republic of China.
2) To develop a market opportunity for the sale of U.S. equipment and services in the design and construction of the dams and hydropower facilities that will be built under the guidance of this project.

B. Background: Electric power development is among the highest PRC development program priorities and was identified as a top TDP priority at the November 1981 US/PRC Joint Economic Committee meetings in Beijing. The Tian Sheng Qiao project, located on the Hong Shui River, Ghangxi Province, southern China, is one of PRC's top three hydropower projects. It would consist of two dams, a low one (50m) producing 800 MW and a high one (100m) producing 1,200-1,500 MW, with associated power-generating stations. The PRC wants to start the low dam within a year or two, and the high dam

within three years. A direct current (DC) transmission system would transmit power approximately 1,000 km to Guangdong Province. PRC design teams have already prepared general layouts, basic designs, and preliminary estimates of costs and benefits. The project has been approved by the appropriate state council authorities and is in the state plan which assures that the necessary resources, including foreign currencies, will be allocated. PRC has asked the World Bank to place this project second on the World Bank's hydropower loan list, and may also request some Ex-Im funding.

C. Description: The pre-project study would include: 1) a review of the PRC's efforts; 2) a study of construction; 3) planning and scheduling; and 4) preparation of cost estimates and perhaps the tender documents. The output of this project will be the necessary information to proceed with the engineering design and construction of the dams and power plants.

D. Benefits/Results: The total cost of the Tian Sheng Qiao project is estimated at $1.5 billion. Having the pre-project study performed by a US firm should lead to US firms doing the engineering design and construction supervision, and to the use of US-supplied equipment for the project. The potential for US exports is estimated at about $175 million.

5. BASELINE SCHEDULE:

Milestones	Date
Approve Project	June 1981
Start Study	December 1982
Complete Study	June 1983

6. FUNDING - ALL YEARS (Study Only)

	FY82	TOTAL
U.S./TDP	$440,000	$440,000
PRC	In Kind	In Kind
TOTAL		

7. TDP FUNDING:

OBLIGATED:

#7425040	$400,000
#7425041	0
	$400,000

DISBURSEMENTS:

#7425040	0
#7425041	0
(July 31, 1982)	0

8. OTHER:

The PRC's other two high-priority hydropower projects are Shui Kou and Lubuge.

A TDP offer to fund a pre-project study for Shui Kou resulted in a US firm receiving the contract even though the PRC subsequently used UNDP funding for the study. The US export potential is about $175 million (same as Tian Sheng Qiao).

An Australian firm, funded by a grant from the Australian government, is performing the pre-project study for the Lubuge project. The Australians have also offered to fund the pre-project study for Tian Sheng Qiao, provided that it be performed by an Australian contractor.

PROJECT DATA SHEET
August 17, 1982

1. PROJECT TITLE: Tanzania - Songo-Songo Natural Gas Project

PROJECT NUMBER: 7415034

PROJECT ACTIVITY TYPE: Feasibility Study

MODE OF IMPLEMENTATION: Contract

IMPLEMENTING AGENT: Williams Brothers Engineering Co.

PROJECT OFFICER:
Mr. Raymond Dinkin
Trade and Development Program
International Development Cooperation Agency
Washington, DC 20523
(703) 235-3657

PROGRAM MANAGER:
Mr. Raymond Dinkin
Trade and Development Program
International Development Cooperation Agency
Washington, DC 20523
(703) 235-3657

CONTRACTING AGENT:
Mr. L.E. Stanfield
Agency for International Development (AID)
Washington, DC
(703) 235-1399

PARTICIPANTS:

<u>Tanzania</u>	Minister for Water and Energy	Dr. Nicholas Kassum
<u>United States</u>	Trade Development Program	
Tanzania Petroleum Development Corp.	Development Manager, Natural Gas	Sylvester Barongo, General Manager
U.S. Embassy	Project Support	Stuart Lynn, Economic Counselor
AID	Engineering Support	Harold LeSieur
Williams Brothers Engineering Co.	U.S. Contractor	Wilson N. Gilliat, Vice-President

2. TOTAL TDP COST: $105,266
TOTAL PROJECT COST: $105,266

3. START: June 1981
COMPLETE: September 1981

4. PROJECT SUMMARY:

A. <u>Objectives</u>:

1) To provide a conceptual design and evaluation of a system for transmitting natural gas for feedstock use in a new ammonia/urea fertilizer plant, and to provide information for selecting the best route for the pipeline from gas field to plant.

2) To create a preference for U.S. services and equipment in implementing the follow-on gas line project, given that international competition for such projects is currently quite vigorous.

B. Background: Eighty percent of Tanzania's export earnings are now used to pay for imports of energy. Converting domestically-produced natural gas to ammonia/urea fertilizer for export would provide a significant new source of hard-currency earnings, and also replace imports of fertilizer. The gas-to-fertilizer project has very high priority in Tanzania's energy development program. The total project consists of three separate parts: 1) developing the gas field (located off-shore, near the island of Songo-Songo), 2) building a gas gathering/processing/transmission system to move the gas to the fertilizer plant, and 3) building/operating the conversion plant. Gas field development is being supervised by the Tanzania Petroleum Development Corporation (TPDC). The fertilizer plant is a joint venture of TPDC and AGRICO Chemicals, a U.S. corporation based in Tulsa, Oklahoma.

C. Description: The immediate project is a feasibility study of the gas gathering and transmission system. The study will provide sufficient information for selecting the pipeline route, determining the wellhead price of the gas, and evaluating the financial aspects of the project on a budgetary basis using the discounted cash flow method.

D. Benefits/Results:

1) The U.S. export potential in pipeline construction and engineering services is approximately $25-30 million.
2) The fertilizer plant, construction of which depends on the building of the pipeline system, will be built and operated by a U.S. company having a minority equity position. Infrastructure projects to support the work force will also be required. U.S. firms will share in these projects.
3) The total outlay for the pipeline system, fertilizer plant, and infrastructure will be on the order of $500 million.

5. BASELINE SCHEDULE:

Milestones	Date
Approve Project	June 12, 1981
Complete Study	October 12, 1981 (See Item 8)

6. FUNDING - ALL YEARS:

	FY81	TOTAL
U.S./TDP	$105,266	$105,266
Tanzania		
TOTAL	$105,266	$105,266

7. TDP FUNDING:

	FY81
OBLIGATED:	$105,266
DISBURSEMENTS: (July 31, 1982)	$ 62,997

8. OTHER:

On September 15, 1981, Williams Brothers, the contractor, submitted a favorable feasibility study, subject to further confirmation of adequate gas reserves. Subsequent drilling effort has confirmed that adequate gas reserves exist.

From all indications, the Government of Tanzania is anxious to proceed with constructing the gas system and fertilizer plant. However, due to current economic conditions, Tanzania has not obtained necessary financing.

TDP PROJECT DATA SHEET
August 27, 1982

1. PROJECT TITLE: Thailand - Ao-Phai Coal-Fired Power Plant

PROJECT NUMBER: 7415072

PROJECT ACTIVITY TYPE: Pre-feasibility and Conceptual Design

MODE OF IMPLEMENTATION: Contract

IMPLEMENTING AGENT: Burns and Roe, Inc.

PROJECT OFFICER:
Mr. William McDonald
Trade and Development Program
International Development Cooperation Agency
Washington, DC 20523
(703) 235-3657

PROGRAM MANAGER:
Mr. William McDonald
Trade and Development Program
International Development Cooperation Agency
Washington, DC 20523
(703) 235-3657

CONTRACTING AGENT:
Agency for International Development (AID)

PARTICIPANTS:

Thailand	Electricity Generating Authority of Thailand	Mr. Kasame Chatikavann, General Manager
United States	Trade and Development Program	
AID	Contract Management	Edward Thomas
Burns and Roe, Inc.	Study Contractor	

2. TOTAL TDP COST: $200,000
TOTAL PROJECT COST: (See Item 6)

3. START: June 1981
COMPLETE: December 1982

4. PROJECT SUMMARY:

A. Objectives:
1) Reduce Thailand's large expenditure and major dependence on imported oil as a fuel for generating electrical power.
2) Provide U.S. industry an opportunity to supply services and large quantities of equipment for this overall project estimated at $1.2 billion.

B. Background: Thailand spends almost half of its foreign exchange funds for imported oil. Its generation of electrical power is approximately 90% dependent on oil as a fuel. The Electricity Generating Authority of Thailand is attempting to reduce that dependency to 40% in the next five years by converting existing power stations to coal, building new coal-fired power plants, and using domestic lignite as a fuel where possible.

A major part of this conversion program involves constructing a coal handling storage facility at Ao-Phai in conjunction with a power station consisting of four six-hundred megawatt generators. The Royal Thai Government requested U.S. assistance in conducting the pre-project engineering study needed prior to initiating the complete feasibility study.

C. Description: This study project consists of two phases:
Phase 1: A thorough review of all available site data, development of a conceptual plant layout, and preparation of a specific technical scope of work for project implementation.
Phase 2: Conduct an analysis of the proposed facility, develop preliminary plant construction schedules, and prepare the scope of work for the full feasibility study.

D. Benefits/Results: The cost of this conversion project is estimated at $1.2 billion. The United States is competitive in coal handling equipment, engineering services, and power generation equipment with an export potential of approximately $750 million.

5. BASELINE SCHEDULE:

Milestones	Date
Approve Project	June 1981
Award Phase 1 Contract	August 1981
Award Phase 2 Contract	October 1981
Complete Phase 1 Contract	December 1981
Complete Phase 2 Contract	December 1982

6. FUNDING - ALL YEARS (Study Only)

	FY81	FY82	TOTAL
U.S./TDP	$150,000	$ 50,000	$200,000
Thailand	In Kind	In Kind	In Kind
TOTAL			

7. TDP FUNDING:

	FY81	FY82
OBLIGATED:	$144,106	$ 50,000
DISBURSEMENTS: (July 31, 1982)	$140,267	$ 47,500

8. OTHER:

TDP PROJECT DATA SHEET
August 27, 1982

1. PROJECT TITLE: Thailand - Methanol Plant

PROJECT NUMBER: 7425028

PROJECT ACTIVITY TYPE: Feasibility

MODE OF IMPLEMENTATION: Contract

IMPLEMENTING AGENT: Chem-Systems, Inc.

PROJECT OFFICER:
Mr. William McDonald
Trade and Development Program
International Development
Cooperation Agency
Washington, DC 20523
(703) 235-3657

PROGRAM MANAGER:
Mr. William McDonald
Trade and Development Program
International Development
Cooperation Agency
Washington, DC 20523
(703) 235-3657

CONTRACTING AGENT:
Inter-Thai Co., Ltd.

PARTICIPANTS:

Thailand	Ministry of Industry	Dr. Vira Susangkarakan
United States	Trade and Development Program	
Inter-Thai Co., Ltd	Thai Study Management	Pitak Intrawityanunt
Chem-Systems, Inc.	U.S. Study Contractor	

2. TOTAL TDP COST: $ 50,000
TOTAL PROJECT COST: $119,000

3. START: To Be Determined
COMPLETE: To Be Determined

4. PROJECT SUMMARY:

A. Objectives:
1) Reduce Thailand's rapidly increasing fuel import costs through greater use of its own natural resources.
2) Provide an opportunity for U.S. industry to export engineering, management and construction services, and also the type of specialized equipment required in the production of methanol.

B. Background: Diesel oil is the primary fuel used in Thailand's growing transportation system. Quantity requirements have steadily increased and now far exceed the production capacity of domestic refineries. Diesel fuel import costs increased from $16 million in 1972 to over $300 million in 1980. Thailand became an important producer of natural gas in 1981 and the discovery of new fields is adding to its reserves. The government is vitally interested in examining the feasibility of using these natural gas resources to produce methanol as a replacement fuel for imported diesel oil.

The Thai private sector is encouraged to participate in achieving national energy goals. Therefore, under the auspices of the Ministry of Industry, the Inter-Thai Company will have a major managerial role in this project and will contract with Chem-Systems for the study. TDP funding is in the form of a reimbursable grant to Inter-Thai and will be reimbursed when the plant goes forward.

C. Description: This project consists of a study to 1) assess the feasibility of constructing a 2,000 ton/day plant to produce methanol; 2) develop a vehicle test program to demonstrate the practicality of methanol as an alternate for diesel fuel; 3) provide recommendations on feedstock pricing, product pricing and target markets; and 4) develop a staff training program.

D. Benefits/Results: The total investment for the overall methanol project is expected to reach $250 million. The U.S. export potential is estimated at $140 million and includes engineering design and construction management; specialized equipment such as reactors, compressors and instrumentation; and a portion of the construction costs.

5. BASELINE SCHEDULE:

Milestones	Date
To Be Determined	

6. FUNDING - ALL YEARS (Study Only)

	FY82	TOTAL
U.S./TDP	$ 50,000	$ 50,000
Thailand	69,000	69,000
TOTAL	$119,000	$119,000

7. TDP FUNDING:

	FY82
OBLIGATED:	$ 50,000
DISBURSEMENTS: (July 31, 1982)	0

8. OTHER:

TDP PROJECT DATA SHEET
August 23, 1982

1. PROJECT TITLE: Uruguay - Biomass to Ethanol

PROJECT NUMBER: 3801034

PROJECT ACTIVITY TYPE: Feasibility Study

MODE OF IMPLEMENTATION: Contract

IMPLEMENTING AGENT: Multinational Agri-business Systems, Inc.

PROJECT OFFICER:
Mr. Joe Sconce
Trade and Development Program
International Development Cooperation Agency
Washington, DC 20523
(703) 235-3663

PROGRAM MANAGER:
Mr. Joe Sconce
Trade and Development Program
International Development Cooperation Agency
Washington, DC 20523

CONTRACTING AGENT:
Agency for International Development (AID)

PARTICIPANTS:

Uruguay	Cooperativa, Agro-pecuaria Ltda, Norte Uruguay (CALNU)	Ing.Ags. Hugo E. Marixcurrena President, CALNU and Uruguay Project Manager
United States	Trade Development Program	
U.S. Embassy, Uruguay	Project Support	
AID	Project Funding	
Multinational Agri-business Systems, Inc.	U.S. Contractor	Carl Metzger

2. TOTAL TDP COST: $230,000
TOTAL PROJECT COST: (See Item 6)

3. START: March 1980
COMPLETE: November 1982
(See Item 8)

4. PROJECT SUMMARY:

A. Objectives:
1) Reduce Uruguay's requirement for imported petroleum.
2) Create in Uruguay a preference for U.S. services and equipment in implementing the project.

B. Background: Uruguay imports 100% of its petroleum requirement. To assist in reducing this export revenue, a large sugar producer, Cooperativa Agro-pecuario Ltda, Norte Uruguay (CALNU), is proposing to produce alcohol for use in making gasohol. The project has a high priority in the country's development plan.

C. Description: The project involves the expansion of sugar mill plant and production areas; the introduction of new irrigation, harvesting and transport technologies; and the growing of additional feedstock, e.g., sweet sorghum, for making alcohol. CALNU has made several preliminary appraisals in these areas and desires an analysis of all portions of the project to assess its feasibility and provide a detailed implementation plan. The contractor, MASI, works under the guidance of the president of CALNU, the Commercial and Agricultural Attaches of the American Embassy in Montevideo and the Office of Reimbursable Development Programs (RDP), Agency for International Development. RDP is providing funds for the study.

D. Benefits/Results: The U.S. export potential in agricultural and alcohol distillation technology is approximately $16 million.

5. BASELINE SCHEDULE:

Milestones	Date
Approve Project	April 1980
Complete Study	November 1982 (See Item 8)

6. FUNDING - ALL YEARS:

	FY80	TOTAL
U.S./TDP	$230,000	$230,000
Uruguay	In Kind	In Kind
TOTAL		

7. TDP FUNDING:

	FY80
OBLIGATED	$225,705
DISBURSEMENTS: (July 31, 1982)	$216,483

8. OTHER:

The original planned completion date for this study was August 1980. This date slipped to December 1980, then August 1981, and is now projected by the contractor to be November 1982.

TDP PROJECT DATA SHEET
August 31, 1982

1. PROJECT TITLE: Zimbabwe - Development of a Sugar/Ethanol Facility

PROJECT NUMBER:

PROJECT ACTIVITY TYPE: Feasibility Study

MODE OF IMPLEMENTATION: Contract

IMPLEMENTING AGENT: Edward L. Bateman, Inc.

PROJECT OFFICER:
Mr. Raymond Dinkin
Trade and Development Program
International Development Cooperation Agency
Washington, DC 20523
(703) 235-3657

PROGRAM MANAGER:
Mr. Raymond Dinkin
Trade and Development Program
International Development Cooperation Agency
Washington, DC 20523
(703) 235-3657

CONTRACTING AGENT:
Government of Zimbabwe

PARTICIPANTS:

Zimbabwe	Ministry of Industry and Energy
United States	Trade Development Program
U.S. Embassy, Harare	Program Support
AID Mission, Harare	Program Support
Industrial Development Corporation of Zimbabwe, Limited	Zimbabwe Project Manager
Edward L. Bateman, Inc.	U.S. Study Contractor

2. TOTAL TDP COST: $400,000
TOTAL PROJECT COST: (See Item 6)

3. START: To Be Determined
COMPLETE: 15 Months From Start

4. PROJECT SUMMARY:

A. Objective: To complete the overall Phase II feasibility study required to obtain international financing for the development of a sugar/ethanol facility at Chisumbanje, Zimbabwe.

B. Background: Zimbabwe's need to import 100% of its required petroleum and allied products is critically impeding its industrial growth and increasing its foreign exchange holding deficits. As a partial solution, Zimbabwe is producing alcohol from sugar cane at its Triangle facilities in S.E. Zimbabwe and then blending the alcohol with gasoline to be sold as "Gasohol" containing 15% alcohol. It is also experimenting with 100% alcohol fueled cars as well as with gasohol blends containing about 25% alcohol. In view of the resultant projected alcohol needs, current production capacity will be inadequate. In April 1981, Edward L. Bateman, Inc. (Denver, CO) completed a study of the technical and economic feasibility of a sugar cane

to ethanol conversion plant at Chisumbanje (S.E. Zimbabwe) for Zimbabwe's Industrial Development Corporation. The current World Bank study of energy alternatives has found the Chisumbanje project a viable one particularly with a Phase II updating of the first feasibility study. United Kingdom, West German, French and Dutch firms have all offered to do free Phase II feasibility studies.

C. Description: The Phase II follow-up feasibility study tasks are:
1) Conduct economic rate of return and cost benefit analyses.
2) Estimate the cost of resettling personnel in and out of the Chisumbanje area.
3) Assist in determination of the best production mix of ethanol and sugar.
4) Locate potential sources of financing for the project.
5) Locate sources of equipment for the project.

D. Benefits/Results:
1) The U.S. export potential is estimated at over $80M of which an estimated 50% will be disposable income for the U.S.
2) It is anticipated that Zimbabwe's foreign exchange situation will improve by about $79M per annum; $34M from exports (sugar and alcohol) and $45M from decreased petroleum import costs.
3) During construction, it is estimated that 13,000 people will be employed on the project. This will reduce to an operating level of 4,000 people with another 2,000 expected to be needed for infrastructure support activities.

5. BASELINE SCHEDULE: To be determined.

6. FUNDING - ALL YEARS:

	FY82	TOTAL
U.S./TDP	$400,000	$400,000
Zimbabwe	In Kind	In Kind
TOTAL		

7. TDP FUNDING:

	1982
OBLIGATED:	0
DISBURSEMENTS: (July 31, 1982)	0

8. OTHER:

Should Bateman be awarded the major engineering design and management contracts that are expected to follow a successful study, Bateman has agreed to fully reimburse TDP in the amount of this grant.